Ceramic

Differential Low Pass Filter DLFCN-290+

50Ω DC to 290 MHz

Generic photo used for illustration purposes only

CASE STYLE: FV1206-1

The Big Deal

- Differential operation
- Small size
- Very wide stopband up to 2000 MHz

Product Overview

Mini-Circuits' DLFCN-290+ is a LTCC dual low pass filter with a passband from DC to 290 MHz. This can operate as balanced input / output filter. This model is ideal for applications requiring filtering of balanced signals on dual 50Ω lines such as DACs/ADCs, systems with very low noise requirements and more. The filter provides low insertion loss in the passband, and a very wide stopband up to 2000 MHz, making it suitable for use in wideband systems with many harmonics and spurious products. The unit comes housed in a tiny, rugged 1206 ceramic package, with wraparound terminations for excellent solderability.

Key Features

Feature	Advantages
Differential filter	Allows filtering of balanced signals in a single, tiny component. Eliminates the need for binning and matching of separate discrete components.
Tiny size (0.126" x 0.063" x 0.035")	Saves space in dense circuit board layouts and minimizes the effects of parasitics.
Wide stopband	Provides excellent rejection over a wide band, ideal for blocking harmonics in wideband communications systems.
Wrap-around terminations	Provides excellent solderability and easy visual inspection.

Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

Ceramic

Differential Low Pass Filter

50Ω DC to 290 MHz

DLFCN-290+

Generic photo used for illustration purposes only
CASE STYLE: FV1206-1

+RoHS Compliant
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

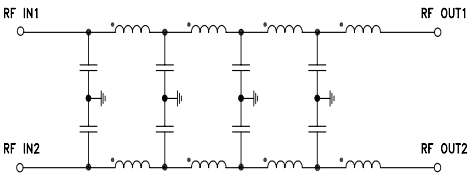
Features

- Good power handling, 2 W
- Small size
- Balanced input-balanced output
- Temperature stable
- LTCC construction

Applications

- Harmonic rejection
- VHF/UHF transmitters/receivers
- Test and measurements
- Used with PMC-Sierra's PM8910/11/12/13

Functional Schematic



Electrical Specifications[1,2] at 25°C

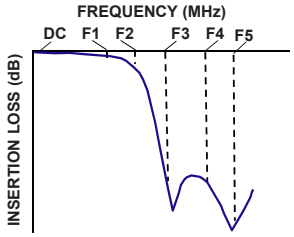
Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC - 290	—	2.0	3.5	dB
	Freq. Cut-Off	F2	325	—	3.0	—	dB
	VSWR	DC-F1	DC - 290	—	1.22	—	:1
Stop Band	Rejection Loss	F3	460	20	25	—	dB
		F4-F5	600 - 2000	37	45	—	dB
	VSWR	F3-F5	460 - 2000	—	20	—	:1

1 In Applications where DC voltage and/or current is present at either input or output ports, DC de-coupling capacitors are required. If DC pass from IN-OUT is required, please contact Mini-Circuits for alternatives.
2 Measured on Mini-Circuits Characterization Test Board TB-255+

Maximum Ratings	
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	2 W max.@25°C

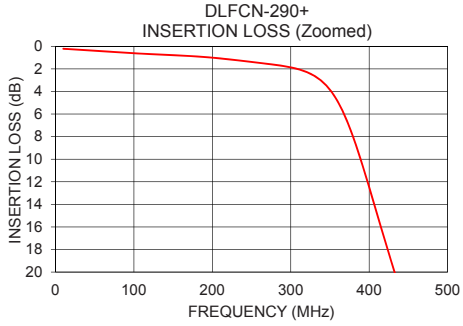
*Passband rating, derate linearly to 1 W at 100°C ambient
Permanent damage may occur if any of these limits are exceeded.

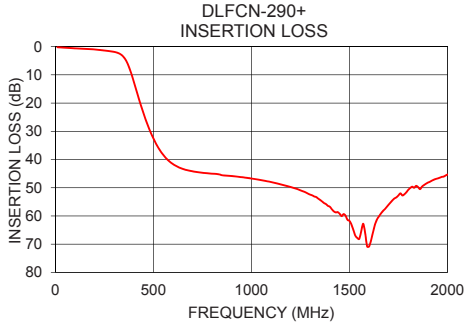
Typical Frequency Response

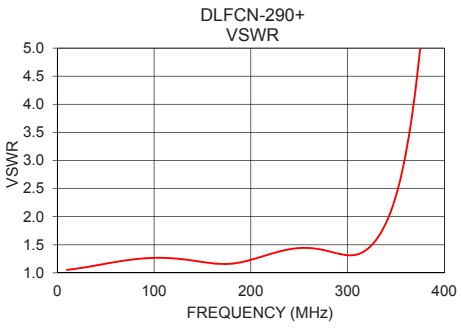


Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
10	0.22	1.05
100	0.61	1.27
150	0.78	1.19
200	1.00	1.23
250	1.39	1.44
290	1.74	1.34
325	2.43	1.49
338	3.00	1.83
436	20.82	23.58
460	25.80	32.14
484	30.11	39.69
500	32.60	44.44
600	41.66	63.82
700	44.20	70.95
800	45.02	73.36
1250	50.93	81.93
1360	54.86	83.22
1400	56.75	81.76
1500	61.75	82.79
2000	45.34	93.09





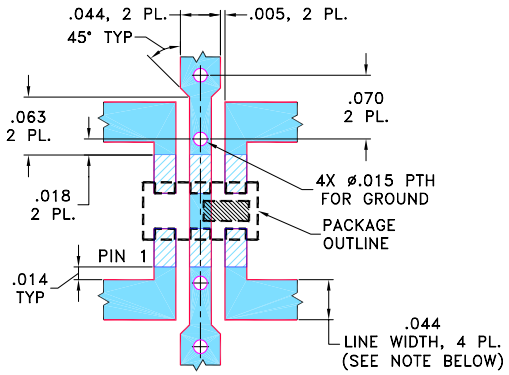


Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

Pin Connections

RF IN1, RF IN2	1, 6
RF OUT1, RF OUT2	3, 4
GROUND	2, 5

Demo Board MCL P/N: TB-255+
Suggested PCB Layout (PL-131)

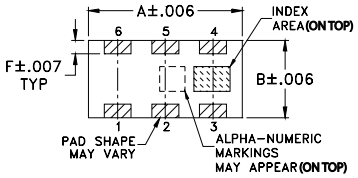


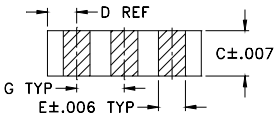
NOTES: 1.TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2.BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

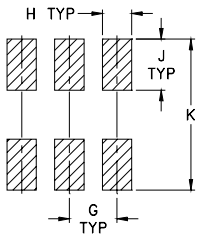
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Outline Drawing





PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F
.126	.063	.035	.024	.022	.011
3.20	1.60	0.89	0.61	0.56	0.28

G	H	J	K	wt
.039	.024	.042	.123	grams
0.99	0.61	1.07	3.12	.020

Note: Please refer to case style drawing for details

Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp